

## **AMENDMENTS TO THE CLAIMS**

The following is a complete listing of the claims with a status identifier in parenthesis.

### **LISTING OF CLAIMS**

1. (Previously Presented) A method of selecting a portion of a 3D volume, the portion of the volume containing a feature of interest, a view of the volume being displayed on a display, the view being generated from a volume-defining array containing data corresponding to properties at points within a coordinate system containing the volume, the volume-defining array being stored by an image processing system, and a user having a user interface for interacting with the image processing system, the method comprising the steps of:
  - a) determining a seed point in the volume defining array in response to the selection by the user of a pixel in the view of the volume being displayed; and
  - b) growing a region in three-dimensions about said seed point, wherein the growth of said region is responsive to input from the user interface, such that manipulation of the user interface selectively determines the extent of the growth of said region.
2. (Previously Presented) The method defined in claim 1, wherein said step of growing said region comprises an iterative series of steps, the steps comprising:

evaluating an untested point in the volume defining array adjacent to a boundary member point to determine if the untested point is a member of said region, said boundary member point being said seed point for a first iteration and said boundary member point being a member point at the boundary of said region for subsequent iterations;

adding to said region the untested points that are determined to be members of said region;

excluding from said region the untested points that are determined not to be members of said region; and

visually distinguishing, on the view of the volume being displayed, the points determined to be members of said region from other points,

wherein the number of iterations performed is responsive to the user interface, such that manipulation of the user interface selectively determines the extent of the growth of said region.

3. (Cancelled)

4. (Previously Presented) The method defined in claim 1, wherein said\_view of the volume being displayed comprises a sectional view of said 3D volume and the method further comprising the step, prior to step (a), of displaying said sectional view in response to user selection of a sectional plane through said

3D volume.

5. (Previously Presented) The method defined in claim 4, wherein said sectional view includes a portion of said feature of interest, and wherein said pixel selected by the user for determining a seed point comprises a pixel located within the feature of interest.

6. (Previously Presented) The method defined in claim 2, wherein said step of visually distinguishing comprises blacking out the pixels in said view corresponding to points in the volume defining array determined to be member points of said region.

7. (Original) The method defined in claim 6, wherein manipulation of the user interface causes a decrease in said number of iterations performed, and wherein in response thereto said region is retracted and said blacking out is removed from pixels corresponding to former member points of said region.

8. (Previously Presented) The method defined in claim 7, wherein said blacking out comprises the application of a mask to said volume defining array, said mask comprising a three dimensional array, the entries of said mask indicating the member status of each point in the volume defining array.

9. (cancelled)

10. (Original) The method defined in claim 1, wherein the user interface has an initial position, and wherein subsequent thereto the user interface may be displaced from said initial position, said displacement causing the extent of the region to be expanded.

11. (Previously Presented) The method defined in claim 10, wherein retraction of the user interface towards said initial position causes the extent of the region to be retracted.

12. (Original) The method defined in claim 10, wherein said user interface comprises a computer mouse.

13. (cancelled)

14. (Previously Presented) The method defined in claim 1, wherein said data is ultrasound data.

15. (Original) The method defined in claim 1, wherein said user interface comprises a device selected from the group comprising a keyboard, a mouse, a trackball, a touch pad, a microphone and a pen.

16. (cancelled)

17. (cancelled)

18. (Previously Presented) An image processing system for selecting a portion of a 3D volume, the portion of the volume containing a feature of interest, a view of the volume being displayed on a display, the view being generated from a volume-defining array containing data corresponding to properties at points within a coordinate system containing the volume, the volume-defining array being stored by the image processing system, a seed point in the volume defining array being determined based upon the selection by a user of a pixel in the view of the volume being displayed, the image processing system comprising:

- (a) a user interface for selecting said pixel and for selectively determining the extent of the growth of a region; and
- (b) region growing module for growing said region in three-dimensions about the seed point, said region growing module increasing and decreasing the growth of said region performed in response to manipulation of said user interface;

wherein the view of the volume being displayed shows the size of said region.

19. (cancelled)

20. (Previously Presented) The image processing system as defined in claim 18, wherein said view of the volume being displayed on the display comprises a

sectional view of said 3D volume, the system further including a view selection module, said view selection module being responsive to user selection of a sectional plane through said three dimensional volume.

21. (Previously Presented) The image processing system as defined in claim 20, wherein said region growing module further includes a mask component for blacking out pixels in said sectional view corresponding to the points in the volume defining array determined to be members points of said region.

22. (Original) The image processing system defined in claim 18, wherein said user interface has an initial position and wherein displacement of said user interface from said initial position causes the extent of growth performed by said region growing module to be increased.

23. (Original) The image processing system defined in claim 22, wherein the extent of growth performed is decreased in response to retraction of said user interface towards said initial position.

24. (Original) The image processing system defined in claim 23, wherein said user interface comprises a computer mouse.

25. (cancelled)

26. (Previously Presented) The image processing system defined in claim 18, wherein said data is ultrasound data.

27. (Original) The image processing system defined in claim 18, wherein said region growing module performs an iterative series of steps, each iteration expanding the growth of said region, and wherein the number of iterations performed is responsive to the user interface, such that manipulation of the user interface selectively determines the extent of the growth of said region

28. (Previously Presented) A computer program product comprising a computer readable medium carrying program means for selecting a portion of a volume, the portion of the volume containing a feature of interest, a view of the volume being displayed on a display, the view being generated from a volume-defining array containing data corresponding to properties at points within a coordinate system containing the volume, the volume-defining array being stored by an image processing system, and a user having a user interface for interaction with the image processing system, the computer program product comprising:

code means for determining a seed point in the volume defining array in response to the selection by the user of a pixel in the view of the volume being displayed; and  
code means for growing a region about said seed point, wherein the growth of said region is responsive to the user interface, such that

manipulation of the user interface selectively determines the extent of the growth of said region.

29. (Original) The computer program product defined in claim 28 wherein the computer readable medium comprises a medium selected from the group comprising a modulated electrical signal, a modulated optical signal, a magnetic storage medium and an optical storage medium.

30. (Previously Presented) The method defined in claim 1, wherein said step of growing said region included iteratively growing said region into adjacent voxels meeting member criteria, and wherein a number of iterations is selectively adjusted by the user through the user interface.

31. (Previously Presented) The method defined in claim 30, further including a step of displaying, at each iteration, the extent of the growth of said region.

32. (Previously Presented) The method defined in claim 31, wherein the view of the volume being displayed includes at least one sectional view of the volume and said step of displaying includes displaying the extent of the growth of said region within said sectional view.

33. (Previously Presented) The image processing system claimed in claim 18, wherein said region growing module iteratively grows said region into adjacent

voxels meeting member criteria, and wherein said user interface selectively adjusts a number of iterations performed by said region growing module.

34. (Previously Presented) The image processing system claimed in claim 33, further including a display module for displaying, at each iteration, the extent of the growth of said region.

35. (Previously Presented) The image processing system claimed in claim 34, wherein the view of the volume being displayed includes at least one sectional view of the volume and said display module displays the extent of the growth of said region within said sectional view.